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THESIS

NARDAC OPERATIONS:
A CASE STUDY

by

Lawrence G. Beasley

September 1984

Thesis Advisor: Dean Guyer

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This thesis presents an examination of operations within a typical Navy Regional Data Automation Command (NARDAC), specifically the Departments of Management Support and Data Processing Installation within NARDACs. The scope of this thesis will concern functional boundaries and changes to these boundaries as a result of a shift from mission funding to Navy Industrial Funding (NIF). The purpose of this examination is to discern not the propriety of the funding shift, but to critically examine (Continued)

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NARDAC Operations: A Case Study

by

Lawrence G. Beasley
Lieutenant Commander, United States Navy
B.A., California State University, Long Beach, 1974

Submitted in partial fulfillment of the
requirements for the degree of

MASTER OF SCIENCE IN INFORMATION SYSTEMS

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I. INTRODUCTION

A. OVERVIEW

The Naval Data Automation Command (NAVDAC) was established in January 1977, as a result of the ADP Reorganization Study of 1976. The organization of NAVDAC and, consequently, the Regional Data Automation Commands (NARDACs) was based on this study.

On February 7, 1978, the General Accounting Office (GAO) delivered a report to Congress entitled "Accounting for Automatic Data Processing Costs Needs Improvements". The GAO report concluded that the current mission funded concept was not adequate for the cost accounting necessary for computer operations [Ref. 1: p. 13]. To alleviate this problem, and in response to a Congressional study conducted by the House Appropriations Committee (HAC) Survey and Investigation Staff, the Navy recommended the addition of the NARDACs to the Navy Industrial Fund (NIF) as part of the FY 1984 Navy Input to the President's Budget. The conversion to NIF was completed and the NARDACs currently operate under this accounting system.

B. RESEARCH QUESTIONS

As with any change to the status quo, the conversion to NIF created some changes in the Management Support and Data Prossing Installation Departments, affecting NARDAC Operations in unanticipated ways. NIF conversion is a fact, and this paper will not dwell on the appropriateness of such a conversion on service organizations such as the NARDACs.

This thesis is designed to examine Operations and the effect of NIF conversion on Operations at the NARDAC level.

The discussion includes the departments of Management Support (Code 20) and Data Processing Installation (Code 50) as constituting NARDAC Operations. The following questions are under consideration during the course of this discussion:

1. What is the scope of Operations at the NARDAC level? What effect has conversion to NIF affected this scope?
2. What is the interaction between departments, both before and after NIF conversion? Has one department become subordinate to the other?
3. What are the metrics that guage the performance of NARDAC Operations?

There is little doubt that the global problems attendant to the NIF conversion were well thought out and supported by NAVDAC, yet within the microcosm of NARDAC Operations, contention is evident. This paper examines the boundaries of this contention, as well as how problems have been solved at the NARDAC level.

II. HISTORICAL OVERVIEW

A. INTRODUCTION

The purpose of this chapter is to establish a historical perspective on matters concerning NARDAC Operations. The chapter contains first the history of NARDAC formation and organization, concentrating on Operations. Secondly, a brief description of NIF is offered, followed by a tracing of how NARDACs come under the NIF umbrella.

The position held by the author is that these seemingly unrelated evolutionary changes interact in ways not anticipated, but certainly worthy of concern to all levels of management, up through the NAVDAC level. It is proposed that by elucidating these interactions, contention caused by these interactions would be thereby relieved by the simple process of understanding what they are.

B. NARDAC: A HISTORICAL PERSPECTIVE

1. OP-91

At the time of the ADP reorganization in 1976, management control for ADP operations was resident in OP-91 (Director Information Systems Division). Created in 1968, OP-91 was the result of a 1966 study which recommended the establishment of a strong, centralized organization in OPNAV to coordinate and control information and data systems [Ref. 2: p. 7].

While policy control was centralized in OP-91, budgeting control, program design, and data processing installation (DPI) operation was left to the individual activities. "The fundamental management strategy in the Navy is

centralized policy direction, decentralized program execution and decentralized control of resources." [Ref. 3: p. 43]. This conflicted with the governmental attitude which emphasized centralization of resource control. By 1976, the Navy had 450 data processing installations (DPIs) supported by 12,500 people, of which only 536 were afloat. Most of these DPIs were single activity dedicated. [Ref. 2: p. 10]

The situation of decentralized resource control resulted in duplication of functions, an inability to coordinate multi-command or common site applications across a disparate variety of users, and an inability to monitor ADP related costs with any degree of accuracy.

The unfavorable image presented by the Navy ADP Management Program was further aggravated by comparison with the Air Force and the Army. Both services had a centralized ADP command which provided high level policy direction. Additionally, the Services maintained a centralized control of automated data systems (ADS) development which provided for the successful standardization of systems that the Navy was unable to maintain. "Both the Army and the Air Force have established a central ADS development activity ... for multi-command and common base operations" [Ref. 2: p. 33].

Between Fiscal Year 1971 and Fiscal Year 1976 the Department of the Navy's ADP budget increased by $98 million from $278 million to $376 million. Hardware expenditures alone increased by almost 40% between fiscal year 1975 and 1976. Despite this increase in the budget, personnel staffing in OP-91 had decreased from 158 in Fiscal Year 1971 to 51 in Fiscal Year 1976. Consequently mission areas which suffered were ignored because of personnel constraints.

2. The Shear Memorandum

On 25 March 1976, Admiral Shear, Vice Chief of Naval Operations (VCNO), commissioned a study group under the

direction of Rear Admiral James W. Nance to examine ADP management. The delegating memorandum stated that:

> Over the past several years, OP-91 has been drastically reduced in numbers, yet the functions to be performed have increased.... A large proportion of business ADP and information systems involve various parts of the Material Command. Therefore, it is appropriate to consider centralizing the execution of these functions in NAVMAT. An organization in NAVMAT could also assume cognizance over much of the ADP work currently going on in the various Systems Commands, perhaps with economies in personnel and hardware/software assets. [Ref. 4]

Specifically, the study group was to examine the feasibility of a centralized ADP command, a proposed organizational venue, functions to be performed by the organization, and estimated costs and benefits.

3. The Nance Report

The final report submitted by the Nance Committee recommended that the new ADP command be located under Chief of Naval Material (CNM) with a residual staff located under OP-094 to act as ADP program/budget sponsor, and at the ASN(FM) level to assist in reviewing automated data processing equipment (ADPE) requests.

Also recommended was the establishment of a follow-on study group to consider in depth the logistics of creating a new command, including such actions as drafting a recommended charter and designing an internal organizational structure.

4. The ADP Implementation Study

The Navy ADP Reorganization Implementation Plan Study Group was the follow-on group established as recommended by the Nance Report. The report continued the general premise that increased control of ADP would produce better information management.

> Information systems are an expression of functional managers' requirement for information needed to manage

> the functional area. Automatic Data Processing is one of many resources used to implement and support Information Systems... Better management or control of ADP will aid in improving Information Systems Management. [Ref. 2: p. 23]

The Implementation Study concluded that "the Navy should place the management of ADP resources in an ADP Command" [Ref. 2: p. 94]. Additionally, it was recommended that the ADP Command assume responsibility for four regional data system support centers (SSC). The Naval Data Automation Command (NAVDAC) was established in January 1977, as a separate entity from NAVMAT. The regional data SSCs were transformed into Naval Regional Data Automation Commands (NARDACs) and smaller commands, Naval Regional Data Automation Facilities (NAVDAFs); all established between January and October 1978.

C. THE NAVAL INDUSTRIAL FUND AND NARDACS

1. Overview

On February 7, 1978, the General Accounting Office (GAO) delivered a report to the Congress that was a result of an accounting study of 26 Federal organizations. The conclusion was that all of them were using accounting methods that were inadequate in some ways. For computer centers, the report stated that functional managers cannot perform the following under the current accounting system:

a) Consistently choose the best alternatives when replacing or adding to computer facilities.
b) Appropriately charge users of computer facilities for services performed.
c) Make the best decisions when unaware of the total cost of implementing and operating applications systems. [Ref. 5: p. 117]

To help alleviate this problem, and in response to a congressional study conducted by the House Appropriations Committee's (HAC) Survey and Investigation Staff, the Navy recommended the addition of NARDACs to the Naval Industrial Fund (NIF) as part of the FY 1984 Navy input to the President's Budget.

2. NIF Implementation

The conversion to NIF began with the Navy's decision to do so on 20 August 1982. NAVDAC was charged with implementing procedures for this conversion by 1 October 1983. A NAVDAC NIF transition team was formed to undertake the task of implementation. This team performed the following operations:

a) Development of the request for a NIF Charter.
b) Tracked FY 1982/1983 customer data, to provide for an equitable distribution of FY 1984 mission funded dollars.
c) Constructed both 1984/1985 spending plans and the FY 1985 NAVCOMPT budget submission. [Ref. 6]

Concurrently, NAVDAC assigned NARDAC, Norfolk as the lead activity for the development of the chargeback system. NARDAC, Pensacola was designated to serve as the NIF Authorization Accounting Activity (AAA) for the entire NARDAC/NAVDAC community. In this role, NARDAC, Pensacola is responsible for billing, recording, maintaining, reviewing, consolidating and reporting all the financial data applicable to the operations of the NARDACs/NAVDAFs under NIF. Additionally, NARDAC, Pensacola is responsible for development and maintenance of the application software relating to the centralized accounting system at NARDAC, Pensacola and for the NIF Memorandum Accounting System at each site [Ref. 7]. The significance of this assignment will be discussed in Chapter Four. Subsequently, plant property was

inventoried and requests for equipment under the Capital Investment Program (CIP) for the FY 1985 budget submission were reviewed and consolidated by NAVDAC. This was with an eye to future standardization of equipment at NARDACs/NAVDAFs.

During the last year of development, NAVDAC developed and published the FY 1984 NIF Stabilized Standard Rates (SSRs) [Ref. 8]. This reflected a change from NAVDAC's initial position of establishing individual activity rates. All NARDACs/NAVDACs were to bill their customer activities at the standard rates established by NAVDAC. The objective of stabilization is to allow user/clients to budget ADP resources required over a period of time. The objective of standardization is to more accurately portray the total costs of each ADP resource. Costs are increased for labor-intensive kinds of work, thereby ending the "de facto subsidies" which in the past rewarded customers heavily using technologically outdated applications systems. Ramifications of the establishment of SSRs will be discussed in Chapter Five.

D. SUMMARY

1. Nolan's Model

In the cases of the creation of the NARDACs themselves and the subsequent conversion to NIF funding, it was assumed that economies of scale would be realized as a result of these changes. Centralization of NIF administration and regionalization of computer systems both reflect the assumption that consolidation is synergistic.

Richard Nolan identified six stages of processing growth within an organization. Briefly these stages and their relevant characteristics are:

Stage 1 - Initiation. Several low level operational systems in a functional area.

Stage 2 - Contagion. A low control, high slack period that results in innovation and extensive application of data processing technology.

Stage 3 - Control. Characterized by a transition from computer hardware management to data resource management.

Stage 4 - Integration. Data base and data communication technologies are moved into key application areas.

Stage 5 - Data Administration. Characterized by shared data and common systems.

Stage 6 - Maturity. Characterized by data resource and strategic planning.

Each stage is characterized by some measure of management control, with stages of low relative cost and low innovation equated to high control and stages of high relative cost, high innovation equated to low control. [Ref. 9: p. 120]

2. Applicability

In view of this model, general purpose ADP in the Navy is entering, or attempting to enter the control stage of development. Regionalization (the development of NARDACs) is a direct response in the effort to control Navy-wide computer resource applications, and the conversion to NIF funding is a response to the recognition that data resources are fiscally identifiable and that accounting systems could be developed to control and support a charge-back system. How these efforts to undertake control of the computer resources Navy-wide affect operations is one of the subjects of discussion of this thesis.

III. OPERATIONS- THE ORGANIZATION

A. INTRODUCTION

This chapter contains a description of a typical NARDAC's organization, with an expanded ennumeration of the functions of the Departments of Management Support (MSD) and Data Processing Installation (DPID). The closer examination of MSD and DPID serves two purposes; first, together their functions most closely approximate the Navy-wide perception of "Operations" within an organization, and secondly, the two departments exhibit an interplay that highlights the changes that conversion to NIF funding has brought to NARDACs (to be discussed in Chapter Four). Finally, there will be a discussion concerning the Liaison-Planning Staff within the NARDAC organization, and its relationship to Operations.

B. ORGANIZATIONAL STRUCTURE

1. Mission and General Organization

OPNAVINST 5420.200 was released in December 1978. It stated the mission of NARDACs as to:

> Provide automatic data procesing (ADP) services to Navy activities; to manage and direct remote facilities, as required; to provide local data processing support in coordination with the regional center; to design develop and maintain standard Navy Automated Systems; to perform such other functions as directed by higher authority [Ref. 10: p. 1].

The general structure of the typical NARDAC is patterned after NAVDAC which, in turn, was constructed from a combination of organization structures of OP-91, its predecessor, and recommendations from the Navy ADP Reorganization Study

Implementation Plan Report of 1976. It is a staff organization and a service organization, which supply the major reasons for its structure. The question of whether or not this structure could be adjusted to increase effectiveness of the NARDAC mission is reserved for discussion in Chapter Five.

The organization of the typical NARDAC is shown in figure 3.1. The functions of operations in a typical NARDAC are included in the Management Support Department, the Data Processing Installation Department, and the Liaison-Planning Staff, as shown in figure 3.2.

C. MANAGEMENT SUPPORT DEPARTMENT (CODE 20)

The Management Support Department (MSD) is the principal advisor to the Commanding Officer on matters dealing with management procedures and analysis, budgetary financial planning and execution, Command Management Information Systems, manpower management, training coordination, personnel and physical security, supplies, common services and facilities management. The MSD is also responsible for developing and recommending to the Commanding Officer policies and procedures for guidance to Command components concerning these areas of responsibility. Finally, the MSD provides management analysis, consulting services and administrative support to line management as directed or requested.

The functions of the MSD, as outlined in NAVDACINST 5450.6, are as follows:

1. Provides guidance and staff services to the Commanding Officer and Department Directors in all matters having and impact on the financial position of the Center.

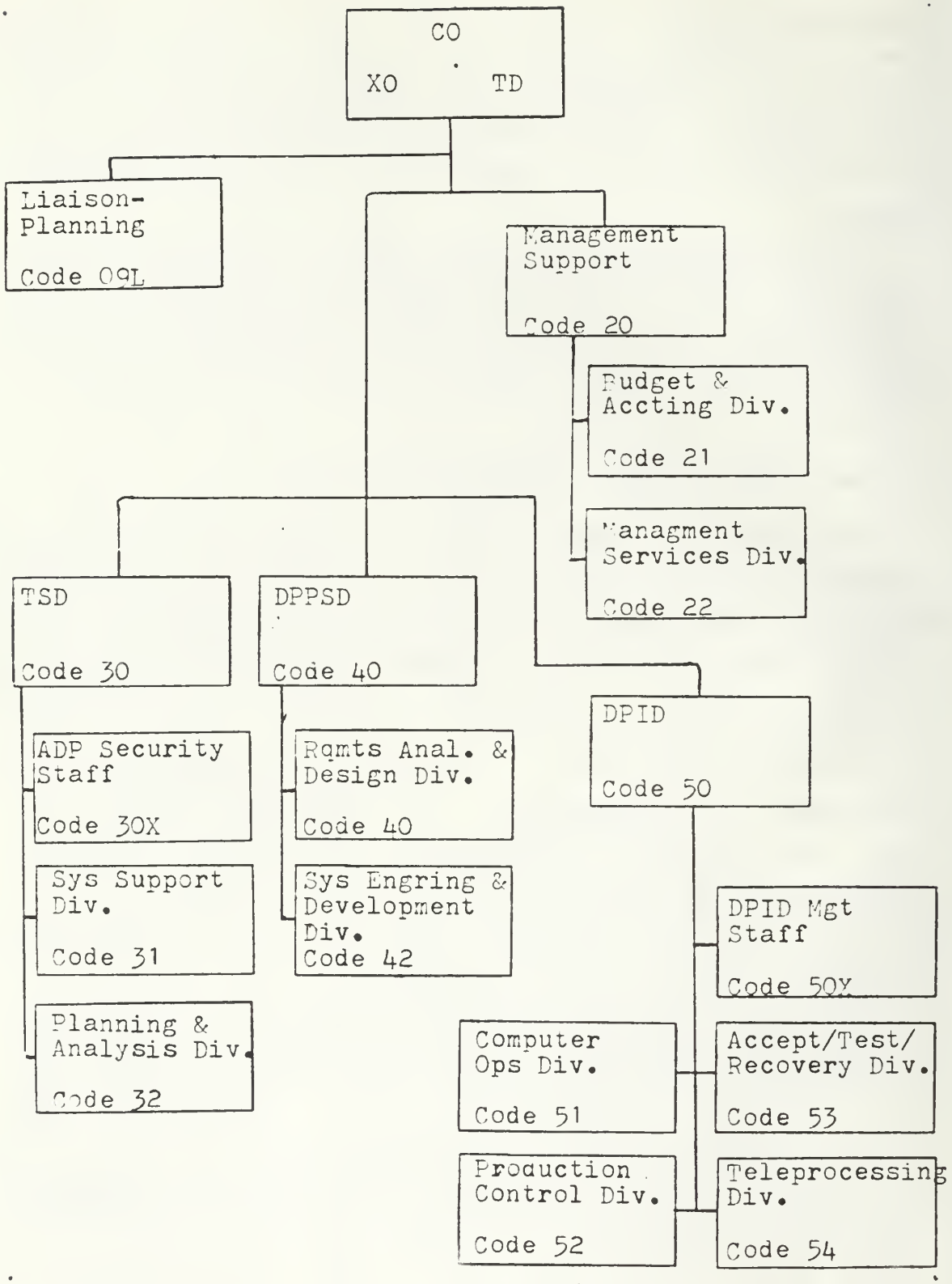

Figure 3.1 Typical NARDAC Organizational Chart

2. Administers the Commanding Officer's position and manpower management policies and programs for civilian and military personnel.
3. Provides management consultation, analysis, planning and forecasting support. Implements management systems and programs throughout the center.
4. Implements physical and personnel security procedures and regulations throughout the Command.
5. Manages the operation of a Command Management Information System that provides management complete manpower, funding, equipment utilization, obligation/ expenses data required for management control.
6. At the request of line managers or by direction of the Commanding Officer, conducts management studies to facilitate effective management and control of command operations.
7. Principal advisor to the Commanding Officer on matters involving supplies, facilities, personnel and other resource-related matters.
8. Conducts reviews and analysis of administrative procedures, policies and techniques.
9. Provides guidance and staff services to the Commanding Officer and Departments concerning procurement and contracting matters. [Ref. 11: p. 4-1].

D. DATA PROCESSING INSTALLATION DEPARTMENT (CODE 50)

The Data Processing Installation Department (DPID) administers, operates and controls all ADPE including peripherals and telecommunications devices, lines and modems within NARDAC. DPID also provides batch, teleprocessing services in support of designated commands and activities in a multi-shift, multi-vendor and multi-processing

environment. Finally, DPID develops, implements, and maintains an ADP risk management program for NARDAC including contingency plans and procedures for operations at other sites.

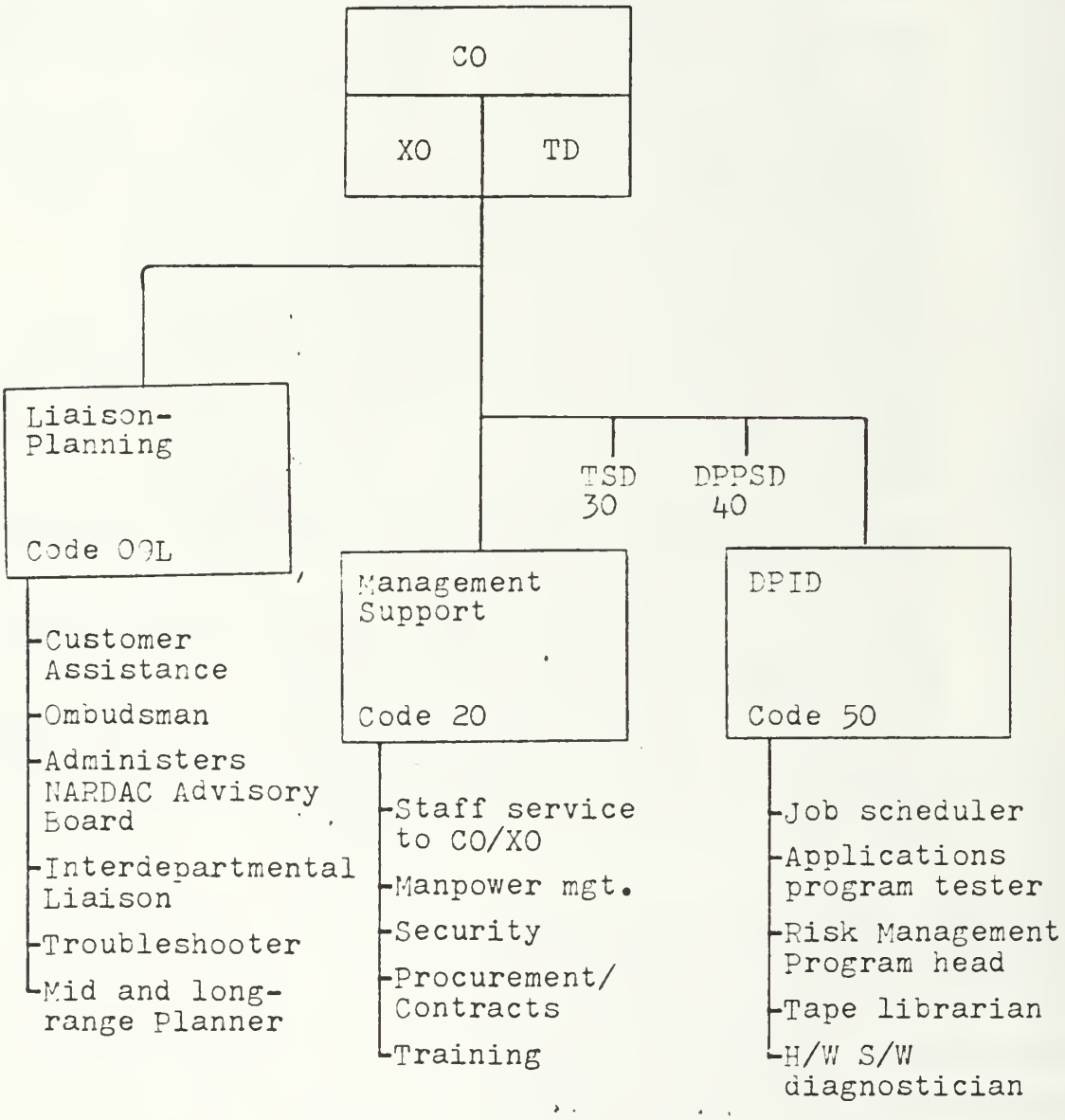

Figure 3.2 Operations within the NARDAC Organization

DPID performs the following functions:

1. Operates NARDAC ADPE in a multi-site and multi-shift environment providing production services in support of Navy activities.
2. Analyze user production requests, schedules all jobs, allocates resources, and directs output preparation and distribution.
3. Receives application programs and operating system software from various sources such as Central Design Activities (CDAs) and NARDAC TSDs and DPPSD's.
4. Conducts production testing to determine operability, compliance with established standards and impact upon available DPID resources.
5. Recommends acceptance or rejection of applications programs and operating system software for production operation.
6. Loads all accepted application programs and operating system software into the DPID software production library.
7. Diagnoses hardware, system software, application program and/or teleprocessing malfunctions and identifies sources of problems. Initiates appropriate action to resolve problems and implements procedures to restore normal operations.
8. Develops, implements and maintains an ADP Risk Management Program for the NARDAC.
9. Identifies requirements and participates in negotiations for procurement and maintenance of ADPE.
10. Conducts hardware evaluation and acceptance tests.
11. Operates a magnetic media library and performs all functions related to control and maintenance of magnetic media and related data sets.
12. Implements and manages the actions and procedures to minimize the downtime resulting from equipment, software, or program failures.

13. Provides technical assistance as requested to NARDAC, TSD's, DPPSDs and other system development activities in the development and implementation of new operating system software and application programs. [Ref. 11: p. 7-1]

E. LIAISON-PLANNING STAFF

The Liaison-Planning Staff (LPS) is an interdepartmental organization, not a department, per se. LPS was created to fill the holes in operations functions that were missed when the decision was made to organize NARDACs in accordance with staff vice operational dictums. While not replacing day-to-day direct contact between the customer and other NARDAC Departments, LPS is the principal advisor to the Commanding Officer, Executive Officer, and Technical Director concerning customer requirements for ADP operations support, application programming, and ADP technical support.

The functions of LPS are as follows:

1. Providing information or assistance to customer managers in the following areas: a) NARDAC capabilities and resources available to develop and maintain new systems; b) NARDAC corrective actions taken in response to complaints concerning symtomatic, repetitive, long-standing, unresolved problems; c) NARDAC response to urgent, unscheduled service requests.
2. Providing liaison between Command Management and Customer Management.
3. Representing customer management at NARDAC internal activities involving customer services or problems.
4. Developing and implementing strategy for identifying potential customers and, acting as liaision for the NARDAC, establishes and coordinates the Command's relationships with these customers.

5. Administering the NARDAC Advisory Board which is chaired by the Commanding Officer and consists of top level representatives of each of the user Commands and activities. Develops agenda, makes presentations and develops plans of action and milestones to implement Advisory Board decisions.
6. Coordinating NARDAC projects which cross organizational lines and/or involves other commands.
7. In response to requests from the Commmanding Officer, Executive Officer, or Technical Director, conducting and/or coordinating special studies and analysis of NARDAC operators or designated problem areas.
8. Preparing technical and non-technical reports of findings and, working in coordination with involved departments, developing recommendations and/or proposing corrective actions for presentation to the Commanding Officer, Executive Officer and Technical Director. Coordinates and monitors implementation of approved recommendations.
9. Developing mid-range and long-range service plans in coordination with cognizant departments and customers.
10. Assisting new or potential customers by coordinating the establishment of initial data processing services. [Ref. 11: p. 3-1]

F. SUMMARY

The functions ordinarily attributed to "Operations" in an operational environment appear to be scattered throughout two departments and a special inter-departmental board in the staff environment, as developed for the NARDACs. Three questions that come immediately to mind are: (1) Is this the most efficient way of handling NARDAC Operations, and

(2) is this the most effective way of handling Operations (an entirely different question)? Moreover, not addressed in this chapter but still germane,(3) has the conversion to NIF funding caused a de facto shift in areas of power and functional responsibility between these "Operations" departments? The following chapters will address these questions.

IV. OPERATIONS INTERRELATIONSHIPS BETWEEN DEPARTMENTS

A. INTRODUCTION

That which constitutes operations in a NARDAC is scattered throughout the organization. Still, regardless of this staff environment, operations must proceed. Avenues of communication, formal or otherwise, must exist.

Consequently, it can be shown that there are interrelationships between MSD and DPID; communications pathways that extend horizontally as well as vertically. The direction of this chapter is to examine the horizontal interrelationships, both in the time frame prior to NIF conversion, and after the conversion. The position held by the author is that the staff organization was ineffective insofar as operations functions were concerned, and the problems attendant to the organization were made clearer by the NIF conversion.

B. INTERRELATIONSHIPS PRIOR TO NIF

It can be said that the direction of communication flow is determined by who initiates and who responds. The avenues of communication between the departments follow this definition, but with parallel and separate pathways, depending on the initiating department.

All principal officials are authorized and expected to communicate informally with each other and their external organizational authorities whenever cooperative action is appropriate. The objective of this cooperation is to preclude action from overlapping, duplicating, contradicting others or countering the policies of the NARDAC and/or COMNAVDAC.

1. Interrelationships- Formal Structure

There exists a formal structure in the NARDAC organizations that lends itself to communication between departments. The form of communication is in the send/receive genre, such as reporting inputs and feedback. Formal dialog is generally one direction or another, but not both. For communication specifically between MSD and DPID (direction implied), the following structure exists:

a) Direct Department Head to Department Head liaison, in accordance with established Navy management procedures.

b) Through the Budget and Accounting Division, which is "responsible for maintaining and providing reports on development projects, managing and maintaining the ADP chargeback system, administering the preparation of operating cost, performance reports and budget statistics by cost category..." all to provide line managers budgetary and financial planning information.

c) Through the Command Analysis Workcenter, which "analyzes management problems, recommends solutions to such problems and assists in implementing approved solutions; develops and recommends improvements to operating methods processes and procedures; produces reports, recommenations, trends and projections; analyzes management information requirements and develops necessary methods and procedures to provide the necessary data". [Ref. 11: p. 4-3]

For communication between DPID and MSD, the following structure exists:

a) Direct Department Head to Department Head liaison.

b) Through the Computer Operations Division, in support of the ADP product for NARDAC customers and internal components of the NARDAC organization by monitoring

the operational efficiency, accuracy and timeliness of end products. Also analyzes user service problems and initiates corrective action, reporting back to MSD.

c) Inputs into the Management Services Division requirements/recommendations in the areas of planning, acquisition, installation ADPE and upkeep of Command Space Facilities.

d) Inputs into the Training Workcenter (part of the Management Services Division of the MSD) training requirements and plans of the DPID, which is in turn charged with answering adequate planning and availability of necessary training resources.

e) As a cost center, DPID forwards the prepared cost center budget for DPID to MSD in accordance with NIF related directives. MSD also considered a cost center, but in the NARDAC organization acts as the POC/collator of budget information under the functional purview of the Budget and Accounting Division.

f) Through the Teleprocessing Division, which is the user point of contact for teleprocessing equipment information, assistance, troubleshooting and repairs. Also assists in technical review/analysis of current and projected workload to determine future telecommunications equipment requirements. [Ref. 11: p. 4-6]

2. Interrelationships- Miscellaneous

Two NAVDAC instructions are included as pertinent to Operations and communications between departments. NAVDACINST 5230.1 contains the descriptions of the procedures for requesting services from NARDACS. This instruction covers all departmental input and cross-communication between departments necessary to effect new business for the NARDAC, including computer support services, technical support services, and information systems development

services. NAVDACINST 5230.4 provides policy, assigns responsibilities and defines actions for the execution of the NAVDAC ADP Standards Program. The standards concerned with here are hardware SOPs, general SOPs (fire drills, facility equipment malfunction, security, etc.), and standards for publication of training aids and marketing tools. This instruction applies to all departments, but the majority of action required falls to either MSD or DPID. Secondly, all department heads are members of or have members assigned to various interdepartmental advisory staffs, with membership in the Liaison-Planning Staff as directly relating to Operations. Within this advisory staff, and other ad hoc committees, the Departments of Management Support and Data Processing Installation are able to coordinate and communicate horizontally.

C. INTERRELATIONSHIPS SUBSEQUENT TO NIF

To reiterate, the two major events that occurred with this cost accounting shift were a change to cost center operations for all Divisions/Departments within the NARDAC, and the establishment of NARDAC, Pensacola as the AAA for the activity. With these two changes came an upheaval in interdepartmental relations, which can be assessed as counter-productive and contra-indicative to the stated goals of NARDAC mission. There is no real documentation of the communications problems caused by the NIF shift, since the whole system is comparatively new and has no historical base. Interviews[1] were conducted to fill this information gap. There were some unexpected changes in the status quo.

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[1]Interviews with key personnel were conducted at NARDAC San Francisco on 24 July 1984 and at NARDAC San Diego on 3 August 1984, specifically concerning the effect of NIF on interdepartmental relations as well as general organizational structure questions. The result of the interviews form the body of this section.

First, there was a reversal in the flow of information and report generation. Prior to the NIF shift, mission funded report procedures were well entrenched: budgets were assigned and the individual divisions generated reports which were generally the same throughout the divisions. That is to say, each division shared the burden of report generation equally, but because the mechanisms of accounting feedback reporting were so well established under the mission funded environment, no department head suffered for a lack of information concerning his/her department's accounting performance. The type of information required from each division did not change with the accounting conversion, but the level of costing detail and the frequency of submission increased dramatically.

With every division/department a cost center, performance reports are generated at the Division level and sent up through MSD, which in turn funnels the information on to the AAA. There are, however, no procedures to break down performance feedback from the AAA and forward it back to the Division level. The general concensus of opinion is that information is being "held from" the very ones who could profit from the feedback. At the Division level, this information is necessary to conduct business such as costing out of new projects. Many ad hoc methods are being developed to track accounting performance intra-divisionally, with most of them based on the old mission funded report roughs.

Second, the very nature of reports forwarded to the AAA in accordance with NIF directives dictate a single point of contact per NARDAC. This quite naturally fell under the perview of MSD, specifically the Budgeting and Accounting Division.

The Budget and Accounting Division in both NAPDACs interviewed were subsequently swamped with daily and weekly

data submission reports funnelled up to them from the other divisions in the organization. The Accounting Division was then tasked to collate and assemble the organizational report, as required by the AAA. These procedures tended to establish an information hierarchy, with MSD "on top" unofficially but nontheless de facto. Moreover, this workload increase required an increase in personnel for MSD, mostly in data entry and clerical positions. This increase in personnel caused a stripping of personnel from other departments/divisions, since the civilian hire ceiling had not been lifted, even though authorized by general NIF directives. Without taking any action itself, political or otherwise, MSD was elevated to a superior position, subordinating the other departments.

Third, despite the increase in personnel, MSD virtually ignored its consulting functions in the process of completing NIF reports. Staff services available for training and analysis were severely curtailed, while requirements for such services increased throughout all divisions. The result was a breakdown in the internal review programs and the organizational training plan.

Services such as providing performance reports or the generation of local inter-departmental reporting schemes has been held in abeyance. No effort as yet has been given to the task of providing individual divisions performance information. One DPID Department Head succinctly stated that, "We are being treated like mushrooms, and poor relation mushrooms, at that!"

A uniquely DPID complaint was that the workload on his remaining personnel had shifted from computer operations to administrative matters, such as cost tracking. Due to the vagaries in the NIF directives, much effort has been expended in a good faith attempt to track as much cost as possible, but the hidden cost of administering the

procedures of a cost center is proving to be ephemeral. One DPID "gave up" for a time and costed the administration as overhead, which violates the spirit of the NIF directives. No standardization in addressing these problems appears to exist either inter-departmentally or inter-organizationally.

Last, a common perception among departments in both organizations interviewed was that the current emphasis on control measures was clouding the goals of the organization. That is, the emphasis on cost controls addressed organizational efficiency, while relegating organizational effectiveness to the side. This sentiment was most evident in the DPID of both organizations. The actual operation of the computer resources in pursuit of project completion is the most visible function of Operations in the organization, yet with the current emphasis on administration there is a perception of "undercutting", an unwarranted shift in relative importance and balance of power within the organization.

D. SUMMARY

Most changes in the structure and balance of the organization are a response to external pressures. Because of the original staff structure preceeding the current de facto structure, it is only fair to state that the present situation is the only result that could have been expected.

The perception that MSD is the information gatherer is a correct one: the task of accounting and collating of accounting information quite correctly falls to MSD. In accordance with NIF directives, accounting information from the Division level must be collated and forwarded to the AAA, and this task is well within the charter of MSD.

The perception that MSD is an information hoarder is not correct, however. Though the feedback loop is not closed,

the result is that MSD appears to be the culprit. The procedures to provide palatable information feedback from the AAA have not been established, for two reasons. First, most NIF corporate experience in reporting requirments is anchored in production shops, such as Naval Air Rework Facilities. The report structure required for production shops does not map directly to the requirements of NARDACs. The result is an inadequate report feedback generating system for the NARDAC.

Secondly, there is a lack of historical data pertinent to NARDAC Operations under NIF. At the time of the interview, there was only six months of accounting data. This information is used, among other things, as the basis for rate stabilization activity-wide. Since the current rate used for FY 1984 was picked arbitrarily out of necessity, comparisons of performance based on historical data are specious, for now.

However, this does not mean the MSD has the privilege of ignoring all requests for feedback information. They are not absolved of the responsibility to generate local reports to divisons when AAA support is not forthcoming. In both organizations such reports were admittedly necessary and the responsibility of MSD, but were "in work". Thus, the other departments within the organization have a legitimate complaint concerning feedback reports or, more precisely, the lack thereof.

In the broader perspective, the changes in the staff environment, from internal mutual support (an established staff-function) to external focus/response to outside pressure (an established operational function), may indicate an inherent inadequacy in the staff organization, per se.

For example, a typical operational air squadron has two separate chains of command, depending or sea or shore rotation. In the case of a helicopter ASW squadron, the

immediate superior in the chain of command is Anti-Submarine Warfare Wing, Atlantic/Pacific; a Staff Command. While the squadron is based ashore, all demands on it are from the Wing, including daily/weekly/monthly operations and training reports, administrative and technical inspections and audit services. When the squadron is assigned to an Air Group in preparation for deployment, the immediate chain of command reverts to the Air Group Commander, attached to a particular carrier in a Carrier Battle Group (an operational command). All demands of the squadron then fall under the purview of the Air Group Commander.

The point to be made is that the air squadron operational organization allows it to function freely under either a staff hierarchy or an operational hierarchy without the need to shuffle the internal organization to meet external changes. The major reason for this is the fact that communication is essentially downward, requiring the squadron to be always reactive.

In the case of the relationship between NAVDAC and NARDACs, communications hierarchies are not so clear. Both organizations are structured the same, and it is not clear how they are to interact. Is NAVDAC to be a staff support facility to the NARDACs or is it to be a superior in the chain of command? The conflict between being both a peer and a boss was noted in a study by the House Appropriations Committee Survey and Investigations Staff (HAC S&I) in 1981, stating in part that,

> The perception of the Navy's ADP problems is largely conditioned by the organization and its position relative to the Navy (internal or external). The {problems} can be categorized into several major areas: organizational; lack of strong, central ADP authority; user/ADP community understanding and relationships; duplication of requirements and resources; and lack of cohesiveness in any aspect of Navy's ADP programs. [Ref. 12: p. 7]

Whether NARDACs operating along operational vice staff lines would be better equipped to handle external changes is a

matter of conjecture. Since the current organization more closely resembles the operational organization in function than it does its original staff organization, the conjecture is given more weight.

V. CONCLUSIONS

A. SUMMARY

This thesis has explored the scope of Operations, both in its demographic dimension (across departments) and in its temporal dimension (before and after NIF conversion). Also explored was the interaction between departments, as related to NARDAC Operations. Within this discussion, accounting and performance report procedures were established as constituting the performance metrics for NARDAC Operations. Certain aspects of Operations are givens, e.g. that NARDACs will exist in the future as centrally managed and regionally dispersed, and NIF will provide the accounting structure. Any recommendations for the future will have to include these facts of life.

It is evident the scope of Operations has changed dramatically, and the organizational structure has hindered a smooth response to these changes. Furthermore, feedback in the form of performance statistics or accounting audits have been witheld from NARDAC departments/divisions, primarily due to inflexible tasking prioritization imposed by NAVDAC.

What is not in evidence in NARDAC Operations is of concern, also. For example, although MSD has essentially been established as the department with the most power and thus "on top" a de facto hierarchical departmental structure, there exists almost no interdepartmental rivalry in either organization observed. Two reasons can be given for this development. One, the Department Heads themselves have not lost sight of the NARDAC mission- to service the ADP requirements of its clients- and operate cooperatively,

regardless of externalities. The teamwork in pursuit of the mission is certainly evident by the absence of problems in fulfilling the mission. The other, more mundane reason is that the personnel involved in the departments are so entrenched in the staff enviornment that any external change becomes absorbed, with no measurable effect.

This is not to say that the changes themselves absorbed by NARDAC Operations have been counter-productive. For example, it is recognized that NIF supports the purchase of new ADPE for a project, since the funding is supplied by the user/client vice NARDAC mission funds. Thus, the response to new requests from user/clients is much faster, and the procedures to do so are more streamlined. The anticipated funding shift problems for the user/client did not materialize, due to the excellent coordination of the shift of funds at the Congressional level. The shift was rather smooth for all concerned.

B. RECOMMENDATIONS

Basic questions still remain. Does the NARDAC organization require a change in structure? It certainly appears so. The evolution of the organizational structure has been patchwork since the inception, and now would be the time to closely examine the system. The procedure, called position management, exists to conduct this investigation. Defined, position management is:

> a means of organizing tasks into position structures, assigning duties and responsibilities to positions and evaluating positions for need. Position management, then, is the process by which an organization determines the positions it needs for its present and on going missions, including numbers, kinds and levels. [Ref. 13: p. 1]

NAVDAC assigns the structure of the NARDAC and reserves the power to change the structure [Ref. 14: p. 2]. The structure recommended, based on this author's observation, would

be patterned after an operational structure, specifically as follows:

1. Separate NARDAC operations and administrative functions more distinctly, via the Position Management Study procedures.
2. Assign to Operations all DPID functions, plus the functions of customer liaison and Ombudsman (currently assigned to LPS). This will expand the scope of the operations function to be in line with the operational structure.
3. Assign to Administration all MSD functions, with special emphasis on management support in areas such as risk analysis and performance reports generation.
4. Stabilize work assignments and repopulate the Operations department, with an emphasis on clerical assistence.
5. Keep the Liaison-Planning Staff as an advisory board for NARDAC planning, but remove liaison activities as an LPS function in the organization.

Secondly, does the quest for efficiency in ADP operations cloud the effectiveness of the system? This is a uniquely DPID complaint, but it has system validity. Recalling Nolan's model, NARDACs are currently entwined in the control cycle, which is merely one stage of development in six. Although the current emphasis is on administrative procedures for control, there is no evidence that this is the permanent state. This complaint will diminish with time, as operating procedures evolve.

Of a more immediate concern is the feedback reports at the Department level. The information flow for the organization is bottlenecked at this point. The current reports are inadequate for NARDAC Operations, and attention needs to be diverted to this deficiency. With the development of

these feedback reports, communication of performance metrics will be reestablished.

Finally, policy concerning activity-wide stabilized standardized rates needs to be examined. The individual NARDACs are capable of, and would desire to establish their own stabilized rates, based on local conditions. With NAVDAC control of the establishment of the rates, the individual NARDAC input is ineffectual, and the local accounting problem becomes larger. The NAVDAC could easily pass this responsibility to the NARDAC, with the obvious result of the better accounting through the establishment of a realistic performance cost base.

APPENDIX A
LIST OF ACRONYMS

AAA	Authorization Accounting Activity
ADP	Automated Data Processing
ADPE	Automated Data Processing Equipment
ADS	Automated Data Systems
ASN(FM)	Assistant Secretary of the Navy for Financial Management
CDA	Central Design Activity
CNM	Chief of Naval Material
CNO	Chief of Naval Operations
DON	Department of the Navy
DPID	Data Processing Installation Department
DPPSD	Data Processing Programming Support Department
HAC	House Appropriations Committee
GAO	General Accounting Office
MSD	Management Support Department
NARDAC	Navy Regional Data Automation Center
NAVDAC	Naval Data Automation Center
NAVDAF	Navy Regional Data Automation Facility
NAVMAT	Naval Material Command

NIF	Navy Industrial Fund
SSC	System Support Center
SSR	Stabilized Standardized Rates
TSD	Technical Support Department
VCNO	Vice Chief of Naval Operations

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